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## Catalogue RPCA-VLP1-AP: polyclonal antibody to Visinin-like protein 1- VSNL1

**The Immunogen:** Visinin was originally isolated biochemically from chicken retina as a major protein of about 24 kDa on SDS-PAGE (1). Following cloning and sequencing of visinin, several visinin like proteins were discovered by homology screening (2, 3). One of these, <u>Visinin-like protein 1</u> is a small Calcium binding protein which is very abundant in the nervous system and is found only in neurons, though different neurons have different levels of expression (4, 5). It is particularly concentrated in cerebellar Purkinje cells, and tends to be most abundant in perikarya and dendrites.

The protein was discovered independently by several groups and is therefore also sometimes known as hippocalcin-like protein 3, HLP3, HPCAL3, HUVISL1, VLP-1, VILIP and VILIP-1. The protein belongs to the large superfamily of <u>calmodulin</u> and <u>paravalbumin</u> type proteins which function by binding Calcium ions. Calcium binding alters the conformation of these proteins and allow them to interact with other binding partners, the properties of which they may alter. Visinin-like protein 1 has four "<u>EF hand</u>" domains, which are negatively charged helix-turn-helix peptides which are responsible for Calcium binding.

Visinin-like protein 1 is 191 amino acids in size and has a molecular weight on SDS-PAGE of 22 kDa. The protein has recently been suggested to be a useful biomarker of Alzheimer's disease and traumatic brain injury (6, 7, 8). The <u>HGNC</u> name for this protein is <u>VSNL1</u>.

We are OEM suppliers of this antibody- in other words we manufactured it, characterized it and generated the data presented on this page. This antibody is available from several other vendors, but we can supply it more cheaply and we can provide you with more detailed information on the properties of the antibody.



**Left:** Western blot of bovine cerebellum homogenate stained with RPCA-VLP1-AP. Note the strong clean band running at 22 kDa. **Right:** Neuron-glia cell culture stained with RPCA-VLP1-AP (red), EnCor's monoclonal antibody to GFAP <u>MCA-5C10</u> (green) and DNA (blue). The RPCA-VLP1-AP reveals strong staining throughout some small neurons in soma and all processes, accumulation is seen in some hotspots along neurites. GFAP appears only in astrocytes.

**Antibody Characteristics:** Antibody was raised in rabbit against recombinant full length His-tagged VSNL1 purified from *E. coli* and is known to react with VSNL1 from human, cow, mouse and rat. Since VSNL1 is highly conserved in primary sequence, it is likely that the antibody is effective on other species also.

**Suggestions for use:** The antibody solution is affinity purified on immunogen and is at a concentration of 1 mg/mL 100 µL of phosphate buffered saline. The antibody solution can be used at dilutions of 1:2000 or lower in immunofluorescence experiments. In western blotting using chemiluminescence it can be used at dilutions of 1:10,000 or lower. Antibody preparation contains 10 mM sodium azide preservative (Link to <u>http://www.encorbio.com/MSDS/azide.htm</u> for Material Safety Data Sheet). Avoid repeated freezing and thawing, store at 4°C or -20°C.

Omim link: <a href="http://omim.org/entry/600817">http://omim.org/entry/600817</a>

## References:

1. Hatakenaka S, Kuo CH, Miki N. Analysis of a distinctive protein in chick retina during development. Brain Res. 312:155-63 (1983).

2. Kuno T, Kajimoto Y, Hashimoto T, Mukai H, Shirai Y, Saheki S, Tanaka C. cDNA cloning of a neural visininlike Ca(2+)-binding protein. <u>Biochem Biophys Res Commun. 184:1219-25 (1992).</u>

3. Polymeropoulos MH, Ide S, Soares MB, Lennon GG. Sequence characterization and genetic mapping of the human VSNL1 gene, a homologue of the rat visinin-like peptide RNVP1.<u>Genomics. 29:273-5 (1995).</u>

4. Bernstein HG, Baumann B, Danos P, Diekmann S, Bogerts B, Gundelfinger ED, Braunewell KH. Regional and cellular distribution of neural visinin-like protein immunoreactivities (VILIP-1 and VILIP-3) in human brain. <u>J</u><u>Neurocytol. 28:655-62 (1999).</u>

5. Paterlini M, Revilla V, Grant AL, Wisden W Expression of the neuronal calcium sensor protein family in the rat brain. <u>Neuroscience. 99:205-16 (2000)</u>

6. Laterza OF, Modur VR, Crimmins DL, Olander JV, Landt Y, Lee JM, Ladenson JH. Identification of novel brain biomarkers. <u>Clin. Chem. 9:1713-21 (2006)</u>

7. Lee JM, Blennow K, Andreasen N, Laterza O, Modur V, Olander J, Gao F, Ohlendorf M, Ladenson JH. The brain injury biomarker VLP-1 is increased in the cerebrospinal fluid of Alzheimer disease patients. <u>Clin. Chem.</u> <u>10:1617-23 (2008)</u>.

8. Tarawneh R, D'Angelo G, Macy E, Xiong C, Carter D, Cairns NJ, Fagan AM, Head D, Mintun MA, Ladenson JH, Lee JM, Morris JC, Holtzman DM. Visinin-like protein-1: diagnostic and prognostic biomarker in Alzheimer disease. <u>Ann Neurol. 70:274-85 (2011) doi: 10.1002/ana.22448.</u>

Availability: Material is in stock and ready for immediate shipping.

**Limitations:** This product is for research use only and is not approved for use in humans or in clinical diagnosis.

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